

Training and Use of Medical Auxiliaries in a Navajo Community

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IN MOST COUNTRIES today a serious shortage of health personnel hampers the delivery of necessary medical services (1). This problem is particularly acute in rural or remote communities. Both urban and rural people are demanding more medical services, and governments, whether motivated primarily by humanitarian or political considerations, usually take the position that society is entitled to modern health services.

The difficulty of reaching remote ethnic groups is illustrated in some of the Indian communities of the United States, where there is often a wide gap between the modern medicine potentially available and the services actually delivered and applied (2).

The largest U.S. Indian tribe in population and in the size of the reservation is the Navajo. Because the Navajos have lived on a semiarid plateau isolated from the industrial society which encircles them, they have been able to maintain their own culture to a much greater extent than most other minority groups in our country.

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The U.S. Government has had the responsibility for the health of Navajos and other Indians since 1850. In 1955 this responsibility was transferred from the Bureau of Indian Affairs, Department of the Interior, to the Public Health Service. Recognizing the difficulties in providing health services to a rural minority group, the Public Health Service in 1955 invited assistance from the department of public health of the Cornell University Medical College in setting up and conducting a study on the Navajo Indian Reservation aimed at determining the proper concerns of a health program and developing the practical means for the delivery of the necessary health services in a form acceptable to the people. Thus began the Cornell-Navajo Field Health Project (3-5), of which one major element was the training and employment of Navajo medical auxiliaries to public health nurses and field physicians (3, 5-8).

This report on the medical auxiliary program is presented for its value in demonstrating the principles of adapting medical personnel for fieldwork in a particular society in a unique stage of development.

The Navajo

An acquaintance with the Navajo Reservation, its people, and the way of life is necessary in order to understand the need for indigenous medical auxiliaries and the content of the training program for the auxiliaries.

The reservation is located largely in Arizona and extends into New Mexico, Utah, and Colorado. It is about the size of West Virginia. The winters are cold and harsh and the sum-

mers hot and dry. The dirt roads are frequently gashed by rainstorms or partially buried by sand blown by high winds. Since only a few roads are all-weather paved, many sections of the reservation are practically inaccessible in bad weather.

Traditional Navajo housing, the hogan, is a mound-shaped structure about 20 feet in diameter. Construction materials range from mud and wood to stones. The central doorway is covered with a blanket. The floor is often packed earth. The hogan is heated by a wood fire in the middle of the floor; a gasoline drum is often used as a stove. Usually the family sleeps on the floor on sheepskins; it is not unusual for them to be without beds, chairs, or tables. No electricity or fuel gas is available to most families. They may travel 5 or 10 miles for water to haul home in barrels. The hogans usually have no plumbing and no outhouses. The Navajos walk some distance from the hogan to defecate or urinate.

Navajos generally do not live in villages but in scattered family units several miles from other household camps. There are usually two to six dwelling units among the families that comprise a Navajo homestead or camp. An average of three related families, about 20 persons, reside in each Navajo camp. The basic social structure of the tribe is the extended family, based on a traditional matriarchal clan system.

Primitive transportation and communication patterns persist on the Navajo Reservation. Horse-and-wagons outnumber motor vehicles, but as many as a third of the families may not have any means of transportation. Telephones, which are frequently out of service on the reservation, are limited to schools, hospitals, trading posts, and tribal and U.S. Government offices. Less than half the Navajo families have radios. Communication is mainly on a person-to-person basis.

Despite significant accumulation of tribal wealth resulting from the discovery of oil on their reservation, the average per capita income of Navajos is only one-fourth the U.S. national average (9). The Navajos have only recently switched from a predominantly barter to a cash exchange economy. Many Navajos earn their living today by working for wages off the res-

ervation, but the traditional tribal economy is based on sheep raising and dry farming. Although household crafts, both rug weaving and silver jewelry manufacture, are still important, they are a diminishing source of income.

Most of the adult population have no effective knowledge of English. In a survey of Navajo mothers in the childbearing age, 75 percent could not speak or understand English. The language barrier is a serious problem to technologists who are assigned to the Navajo Reservation. The average formal education level of the Navajos is the third grade. Today almost all Navajo children attend school, but the adults still represent a reservoir of uneducated and nonliterate people.

On the Navajo Indian Reservation the native medicine man or "singer" is still preferred at times to the physician for medical care (6). The Navajo medicine men are also the religious leaders or "high priests" of their society. Illness in Navajo culture is defined as the loss of harmony of the person with his spiritual, physical, or emotional forces. This can come about by such circumstances as seeing a wild animal, touching wood struck by lightning, or attending a native religious ceremony improperly performed. There are specific rituals to cure these illnesses. For example, the traditional explanation among the Navajo for the cause of tuberculosis was thus expressed by a prominent medicine man and vice chairman of the Navajo Tribe: "These doctors tell me tuberculosis is inflicted by a person coughing in your face. Right away I disagree with it. A person should not be that weak to be susceptible to a man's cough. We have a definite idea in mind and know how man gets to be inflicted with tuberculosis. One is the ceremony about the wind chant; if something goes wrong with that, it is tuberculosis. And if lightning strikes you, tuberculosis is the result" (10). Their religion is thus inextricably linked with their health practices.

Accurate health statistics for the reservation as a whole were not available in 1955. In general, medical workers agreed that the predominant patterns of illness were infectious diseases, particularly in infants and young children (11,



Auxiliary trainees study an anatomical chart with their supervisor

2). Tuberculosis, infant diarrhea and pneumonias, and a variety of other childhood infections resulted in high infant mortality. Medical administrators were unable to provide more than token field health services. Public health nurses needed a Navajo interpreter on home visits and frequently one visit took half a day. As recently as 10 years ago, one public health nurse served 10,000 residents and no field physician trained in public health was available for the reservationwide field program. Since the Public Health Service became responsible for Indian health the number of public health physicians and nurses has increased, but qualified field personnel are still in chronic short supply.

In the Government health program, Navajo subprofessional health personnel or medical auxiliaries were mostly female nurse aides, who served in the hospitals and outpatient clinics, and male "driver-interpreters," who were the only nurse assistants used away from the medi-

cal facilities. The nurse aides and the male drivers were not formally trained to translate health and medical information for the physicians and nurses. In addition to interpretation, the auxiliaries performed housekeeping and custodial chores and simple nursing procedures. In no case were they trained in the more complicated nursing procedures such as tuberculin skin testing or the intramuscular or subcutaneous administration of vaccines or drugs.

The Many Farms District

The Cornell-Navajo Field Health Project was put into operation in 1956 in the Many Farms-Rough Rock District, an area of about 600 square miles in the north-central part of the Navajo country. A clinic building was constructed, and a professional staff of two physicians, two public health nurses, and a social

anthropologist and a varying number of sub-professional Navajo assistants were recruited. Curative and preventive health services were then made available to this community. Both medical and social science investigators participated in the teaching, research, and service work, for it was believed that medical service and research methodology could best be designed when the knowledge and techniques of both behavioral science and medicine were incorporated from the outset.

The demographic and health information collected during the first 5 years of study can be discussed only very briefly. The census of this community was 2,300 persons, of whom 50 percent were under 20 years of age. The birth rate was extremely high, averaging 45 per 1,000, a rate twice that of the general U.S. population. The fertility rate, defined as the number of live births per 1,000 women aged 15 to 44, was 220, and this too was twice the national figure. The infant death rate was approximately 75 per 1,000 births, a rate three times the general U.S. rate. The pattern of health and disease in this community was that expected for the way of life and the environment of this population. It was established that 75 percent of the health problems were due to microbial diseases. Diarrhea and pneumonia were the major causes of death in infants. Gastroenteritis or diarrheal disorders were commonly found in young children, 70 percent occurring in children less than 5 years of age. Other common illnesses included impetigo, anemia, conjunctivitis, and a strikingly high prevalence of congenital hip disease. Accidental injuries were also common. Tuberculosis was a major health problem.

Selection, Training, and Use of Auxiliaries

What kind of indigenous medical auxiliary to the public health nurse and field physician would be most useful and effective on the Navajo Reservation, considering the formidable geographic, cultural, and linguistic barriers present? To begin with, the Cornell investigators decided that the following might be expected of the Navajo auxiliaries:

1. To understand the basic facts about health and disease and to be able to interpret them in

the Navajo language and in terms of the Navajo culture.

2. To carry out selected nursing procedures intelligently under the direction of the public health nurse in the field, clinic, home, and school.

3. To collect demographic and health information and to keep accurate records of the information collected and of the simple medical instruction and procedures that they have carried out.

4. To recognize emergencies and administer first aid until the patients can be taken to a physician or nurse.

Eight persons were trained as medical auxiliaries in two classes, each composed of two men and two women; the first class was held in 1956 and the second in 1959. Candidates for auxiliary training were selected largely for their interest in health work and willingness to undergo training. Since Navajo leaders had told us that their people would show the health worker much more respect if he had "a few gray hairs on his head," the trainees selected were, with one exception, over 25 years old.

All the trainees except one had had an extended period of hospitalization for pulmonary tuberculosis. Former tuberculosis patients were selected initially because Cornell physicians had had long-term acquaintance with them during their hospitalization and therefore could evaluate their basic interest and intelligence. Previous hospitalization for tuberculosis helped these individuals understand the goals of medical care. Their own chronic illness had required their active cooperation and patience in order to complete successful treatment. They were therefore able to understand patients' reactions to diagnoses and the physicians' therapeutic plans. During the course of their own illness they had found no quick or magic cure and had adhered to a long regimen of drugs, bedrest, and, in some instances, surgery before a cure was effected. They could testify that they had recovered from tuberculosis by following the doctors' orders and taking drugs. This, of course, did more to help the program get established than any amount of information on the germ theory, which was beyond the level of Navajo educational experience.



A Navajo child is treated by a physician and a medical auxiliary

Navajos from various educational levels were selected since the ability to interpret both language and cultural differences might not correlate with the level of formal school education. Continuity of living in Navajo communities and ability to speak the Navajo language well have in fact proved to be of greater value to the program than formal education. Of the eight Navajos selected for this program, only one had graduated from high school. The investigators recognized that many, if not most, Navajos who had been away from home for years in boarding school have a difficult time readjusting to reservation life a hundred miles from town. This was borne out by the second group of trainees, who were somewhat more advanced in their formal schooling than the first group. While it was easier for them to read and write English, it was more difficult for them to trans-

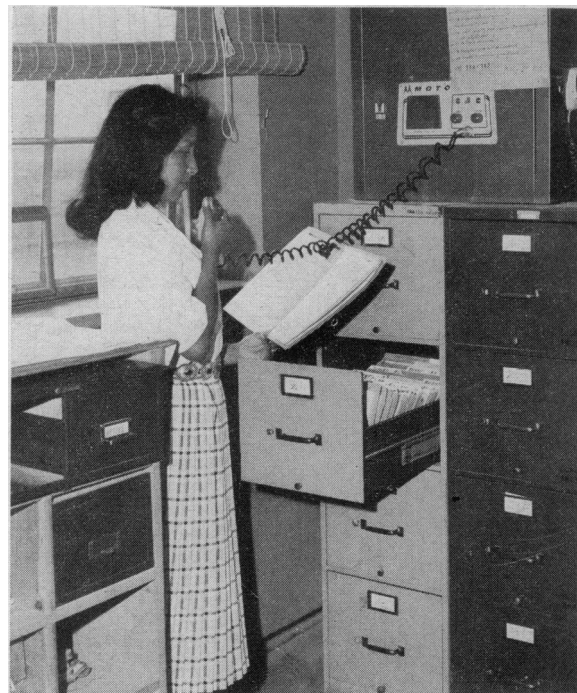
late newly acquired medical information into the Navajo language and culture.

Initially, emphasis was placed on linguistic studies, and trainees were drilled in bilingual transmission of medical concepts. The services of one of the few Navajo nurses with bilingual proficiency were obtained to lay the foundation of the cross-cultural and bilingual training. It was essential, both for research and for the provision of proper medical care, to insure that language distortion and simplification were not occurring on a widespread basis. This was accomplished by training the Navajo assistants in elementary medical science, emphasizing basic anatomy and physiology. Repeatedly, concepts and terminology in English and Navajo were compared. Since visual teaching aids were known to be effective among the Navajo, anatomical charts with legends in both Navajo and

English were constructed. Study of the charts with Navajo-speaking investigators and with the trainees revealed that the Navajos had an extensive terminology for the skeletal system but virtually no terminology for the circulatory and nervous systems. The charts of these anatomical systems in effect created a terminology for lay use. The trainees were taught to use the anatomical charts in presenting medical information to Navajo patients.

The curriculum included personal health in relation to community hygiene and aspects of normal growth and development, including prenatal, infant, preschool and school health, and geriatrics. Elementary principles of epidemiology, immunology, sanitation, nutrition, dental care, and family life were presented. Following this background material, teaching was focused on disease conditions, such as infant diarrhea, congenital malformations, and tuberculosis. The curriculum was designed so that the theoretical and conceptual material was given first. The teaching materials were developed by the field medical "faculty" and were later assembled into a teaching syllabus which each trainee had available for continued study and reference.

An anatomical laboratory demonstration proved to be a vivid experience for both trainees and faculty. A sheep, a familiar animal to Navajos, was dissected. The similarity between sheep and human organs was carefully pointed out. Navajos, in butchering a sheep, remove the organs above the diaphragm en masse. Since there is no separation of one organ from another, the contents of the thoracic cavity are, understandably, described in a single Navajo word and are thought to act as a single unit. The anatomical and physiological differentiation of the trachea, heart, and lungs was a new concept which required the invention of new words to make the translation into Navajo practical. Navajo trainees listened to tape recordings of their interpretative work during discussions between non-English-speaking Navajo patients and the doctors and nurses. Review of how scientific medical concepts were presented to the patient and how the patient's response was translated for the physician and nurse served to emphasize their problems and



A medical auxiliary uses the radiotelephone for quick communication between clinic and field

progress. Through the necessity of revising material for the vocabulary of the lower educational level of the Navajos as well as for the cultural differences, professional workers were able to perceive how, in the past, many of their explanations were complex and unusable to Navajo patients. The professional staff had not realized previously, despite long experience on the reservation, how ridiculous many of their scientific explanations sounded when translated, and the Navajo trainees had not realized how many medical words and phrases they had accepted while they were hospitalized without the slightest notion of their meaning.

Training in numerous nursing procedures was another vital part of the auxiliary's preparation. He learned to conduct and record the initial health interview in the clinic for the physician's review, direct patients in and out of examining rooms to appropriate laboratory and X-ray examinations, and obtain simple measurements of height, weight, and blood pressure. He administered visual and auditory tests, operated the electrocardiograph machine, and cleaned and sterilized medical instruments and equipment. He administered, under super-

vision, intramuscular and subcutaneous injections of streptomycin, penicillin, and a variety of vaccines. He administered and read tuberculin skin tests. He demonstrated sterile technique and the proper method of administering nosedrops and eardrops. He learned how to record his observations and the procedures performed on the official medical records of patients and how to operate and use appropriately the radiotelephone which provides two-way communication between the field vehicle and the medical clinic.

Trainees began clinic duties within the first month of training and thereafter spent increasing amounts of time in supervised clinic work. Field visits began after about 4 months, under constant supervision by the public health nurse. The assistants were expected to visit their assigned families every 3 months, keep records of their visits, and discuss problems concerning the families with the nurse in charge. The trainees also collected vital statistics and census data during the visits. Charts for the patients in the families were carefully maintained to give continuity of care in both the clinic and field visits. In the field, the auxiliaries provided preventive services such as immunization, advised on the feeding and care of infants and the aged, occasionally provided simple nursing services to the sick, and checked on the progress and effects of treatment. Assistance in the school health program was part of the field activity.

An example of a specific medical program that could not have been successfully conducted without the aid of the auxiliary, or "health visitor," was the tuberculosis control program (10). Extensive studies were carried out on the prevalence of tuberculosis, and all school and preschool children were tuberculin tested. With the help of the Navajo auxiliaries, it was possible to supervise closely the domiciliary tuberculosis chemotherapy program. The auxiliaries were able to enlist the cooperation of the individuals, the families, and the entire community for this work.

Evaluation

A detailed evaluation (8) of the Navajo medical auxiliary program was carried out un-

der the direction of the social anthropologist on the project staff. In brief, the evaluation of the auxiliaries was based on expert analysis of their medical interpretation and on assessment of their program value by the professional staff, the community, the trainees, and the Public Health Service physicians and nurses in selected health programs on the Navajo Reservation. One investigator who was skilled in Navajo orthography as used by linguists transcribed by phonetic symbols what had been said in Navajo by patients and by the auxiliaries who were interpreting for physicians. This transcription was translated into English and the physician's statements were compared with his original statements as recorded. In order to minimize bias, the transcriptions were reviewed by another translator and by two Navajo linguists. Four extended interviews were analyzed. All judges agreed that the level of accuracy of interpretation was high and that no significant errors had been made.

The major criticism which physicians and nurses recorded in evaluating medical auxiliaries concerned the efficient use of their time in the clinic and the fact that, while they ably performed their immediate task in the hogan, they did not concern themselves sufficiently with other health matters and failed to capitalize on excellent teaching opportunities.

In the community interview five families were selected from each of the case registers for health visitors. A total of 20 families was drawn, and interviews showed that the family heads generally expressed satisfaction with the performance of the medical auxiliaries as interpreters. Only two spoke critically. Half of the respondents expressed a desire for health workers to spend more time with them on each visit and discuss the health problems more generally rather than perform only the task for which they were sent.

The Navajo auxiliaries, also interviewed by the anthropologist, felt that the families of patients did not ask them enough questions. This was frustrating to the health visitor. They all agreed that it took three or four visits before a family became friendly and at ease, unless the health visitor was a relative. They also agreed that the most difficult subjects to explain to families were immunizations and

X-rays. To those trainees who had been hospital patients, their own experience was a tremendous asset, not only in enlarging their own understanding of illness and medicine but also in their reception by the Navajo patients. The trainees agreed that their job became easier with experience and increased knowledge. In their interviews of patients, matters which had once been embarrassing to mention could now be discussed with poise. Because they had learned more about health and disease, they could more readily interpret difficult terms which have no equivalents in Navajo.

Finally, after the training period, the first class of auxiliaries were sent from the Many Farms-Rough Rock area to work on a trial basis for 6 months in the current Public Health Service program. Three different areas were selected, each representing a different type of field activity on the Navajo Reservation. During the trial period, the Cornell investigators made rounds of the three installations and interviewed the physicians and nurses directly concerned with the students. The nurses and doctors in the government program were enthusiastic about the work of the Navajo medical auxiliary, especially his skill in medical interpretation. After the trial period, each trainee was accepted as a permanent government employee.

There appeared to be unanimous agreement by those participating in the evaluation process that Navajos with restricted or limited education could be trained individually or in small groups to carry out clinic and field work under supervision. The project staff also learned that a single public health nurse could effectively supervise four Navajo assistants. The radiotelephone facilitated communication between the auxiliary in the field and the nurse and doctor in the clinic, and this technique increased the scope of professional surveillance over the trainees. The auxiliary health workers have not gone beyond the limits of their training. They have not tried to practice medicine.

Comment

Faced with urgent needs to expand curative and preventive medical services in underdevel-

oped or rural areas, health administrators have followed one of two general patterns for ameliorating health personnel shortages.

One approach has been to develop the supply of "near-doctors" (12), also popularly referred to as "feldshers," who provide medical services usually in rural areas and without supervision. Their professional qualifications do not meet the established standards for the "full doctors" practicing in the cities. While the use of near-doctors offers some advantages for many rural communities, inherent administrative, social, and psychological difficulties have been found in the system (1,12,13).

The second approach, as exemplified by the Navajo medical auxiliary program, extends and augments the services of health personnel in the traditional professional categories through the use of medical auxiliaries.

The term "auxiliary worker," as used by the World Health Organization, is defined as a designated paid worker in a particular technical field with less than full professional qualifications who assists and is supervised by a professional worker. The World Health Organization Committee on Professional and Technical Education of Medical and Auxiliary Personnel concluded that "for the foreseeable future, and probably for many generations to come, the auxiliary health worker will be an essential member of the team providing health and medical services" (13).

In the Cornell-Navajo program, the nurses and physicians were from the beginning sensitive to the need for full supervision of the Navajo medical auxiliaries. They were not being trained to diagnose disease but only to relay signs and symptoms to the nurses and physicians. Medication, including injections of antibiotics, was delegated to the Navajo assistants but under close supervision. Through the use of these auxiliaries the territory that the public health nurse could cover was increased fourfold. It should be emphasized that in the tuberculosis work as well as in all other therapy and immunization, the patients were first seen in the clinic, with followup in the hogans by the health visitors.

The first class of four trainees were the innovators in the program and therefore had the greatest difficulties (8). Breaking through the

traditional modes of response to the Navajo was difficult, but it has opened the way for the trainees who follow.

A popular belief in development assistance programs is that the professional technologist should learn the language of the people with whom he is working. As an ideal, this is above reproach and certainly should be realized whenever possible. In actuality however, when one considers the many countries in which several languages are in current use and the necessity for assigning highly specialized workers such as physicians from one culture to another, there are many times when it is obviously impossible for the technologist to learn the language well enough to use it in his profession. A poor native interpreter is a serious barrier to communication, but a physician's imperfect knowledge of the indigenous language can be just as disastrous. The physician's mastery of a few helpful phrases in directing or greeting persons in the clinic, however, establishes good rapport with patients.

In order to utilize the full benefits of scientific training across a formidable cultural and language barrier, such as that which hinders our relations with tribal people, it is better for the physician to learn the principles of conceptual transfer and spend the necessary time training his interpreters and himself in the medical concepts of the two cultures. When he is acquainted with the cultural matters involved in the particular exchange, he is far less apt to overlook areas of importance in his interviews with patients. To some extent, this danger of inadequate probing is present in any physician-patient interview, even when both are in the same culture. The only difference is that in the cross-cultural situation, in addition to the self-discipline which the physician must maintain for himself at all times in such interviewing, he must also require that the interpreter likewise maintain such self-discipline.

As for behavior and values related to health, the Navajo medical auxiliary was in an intermediate position between the physicians and the patients. They participated in Navajo curing ceremonies, while believing also in the effective-

ness of modern medicine. To the acculturated individuals, both systems were essential to health. They identified with the patient and his relationship to the physician but were also sympathetic with the patient's needs for and relationship to the medicine man.

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Local Symposiums on the Chronically Ill and Aged

Health and welfare leaders of Pinellas County, Fla., in a series of nine symposiums on services for the chronically ill and aged, deliberated on recent data on the health needs of the county's aged and arrived at specific recommendations for community action. The research division of the Pinellas County Health Department planned the series, held during September 1962 through January 1963.

The major recommendations concerned establishment of (a) a countywide health council to assist in coordinating existing health and welfare services and to explore further the need for new services, (b) a homemaker service, (c) an information and referral center for persons seeking health services, and (d) a hospital-to-home care referral program. Participants repeatedly stressed the need for wider understanding of chronic diseases through health education not only among the patients and the public not also among professional workers.

The basic data used in the symposiums were derived from a study of 2,544 noninstitutionalized Pinellas County residents 65 years of age and over, conducted by the health department and supported in part by the Public Health Service. Other studies were also used as source material.

The first symposium was on homemaker services. The next six concerned particular diseases and conditions, the eighth was devoted to prevention, detection, and control of chronic illness, and the last was on coordination of community health services and facilities.

Each symposium was sponsored by one or more organizations especially interested in the subject. For example, the community welfare council sponsored the meeting on homemaker services; the Arthritis and Rheumatism Foundation and the Society for Crippled Children and Adults sponsored the meeting on arthritic and orthopedic conditions; the county dental

society sponsored the one on dental problems; and the county nutrition committee and the dietetic association sponsored the meeting on diabetes, obesity, and dietary problems. The entire series was endorsed by the Pinellas County Medical Society.

As attendance was by invitation only, discussion was confined to relatively small groups of genuinely interested contributors. The delegates chosen were leaders of health organizations, professional societies, hospital advisory boards, and other groups. A special effort was made to enlist representatives of organizations of retired people.

The meetings generally began with a presentation of relevant medical and social research data for the county by health department staff. National and State officials described studies and programs elsewhere. Local private physicians and dentists explained the effects of particular diseases on the aged. Local voluntary and official health agencies outlined existing programs. Small groups then discussed the relationships among research findings, suggested programs, and local resources. To encourage discussion and debate, group leaders were chosen for their skill in group work rather than for their knowledge of the subject. Each symposium ended with the presentation of recommendations by the discussion groups.

To find out what action was stimulated in Pinellas County by the symposiums, a questionnaire will be sent to participants. Meanwhile, hospital officials and health department representatives have met to plan a hospital referral program, and the dental society has appointed committees to find methods of providing emergency dental care services and to improve dental care in nursing homes and for homebound patients.—BETTY GARDINER, M.S.P.H., *director, division of health education, Pinellas County Health Department, St. Petersburg, Fla.*